

# BIOLOGICAL SCIENCES (BIOL)

## BIOL 0001. General Biology

*Units: 4*

Prerequisite: Completion of CHEM 1A, CHEM 3A/3B, or higher level chemistry course with grade of "C" or better; AND completion of intermediate algebra or higher with grade of "C" or better or appropriate placement; AND eligibility for ENGL 11

Advisory: Eligibility for ENGL C1000

Hours: 108 (54 lecture, 54 laboratory)

Part of the BIOL 1/BIOL 140 and BIOL 1/BIOL 2/BIOL 3 course series for life science majors. Introduction to the principles of general biological concepts including the scientific method, biomolecules, cell structure and function with emphasis on cellular and molecular biology, genetics, and evolution. Lab focuses on key concepts of cell and molecular biology. Non-life science majors see BIOL 10 or BIOL 11. (C-ID BIOL 190) (CSU, UC)

## BIOL 0002. Botany

*Units: 4.5*

Prerequisite: Completion of intermediate algebra or higher with grade of "C" or better or appropriate placement

Advisory: Eligibility for ENGL C1000

Hours: 144 (54 lecture, 90 laboratory)

Part of the BIOL 1/BIOL 2/BIOL 3 course series for life science majors. Introduction to the principles of botany, including diversity, classification, life cycles, and evolutionary trends of plants, fungi, algae, and cyanobacteria. Emphasis is on the anatomy, morphology, physiology, development, evolution, and ecology of plants. Field trips may be required; transportation will be provided. Recommended for biology majors and students in environmental science, plant biology or related programs. Non-life science majors see BIOL 14, BIOL 21, or BIOL 24. Not recommended for students taking BIOL 140. (C-ID BIOL 155) (CSU, UC)

## BIOL 0003. General Zoology

*Units: 4.5*

Prerequisite: Completion of intermediate algebra or higher with grade of "C" or better or appropriate placement

Advisory: Eligibility for ENGL C1000

Hours: 144 (54 lecture, 90 laboratory)

Part of the BIOL 1/BIOL 2/BIOL 3 course series for life science majors. Introduction to the principles of zoology through a detailed survey of the diversity of the animal kingdom, with an emphasis on the evolution and functional anatomy of the major groups. Field trips may be required; transportation will be provided. Recommended for biology majors and students in environmental science, pre-veterinary or related programs. Non-life science majors see BIOL 33. Not recommended for students taking BIOL 140. (C-ID BIOL 150) (CSU, UC-with unit limitation)

## BIOL 0004. Microbiology

*Units: 5*

Prerequisite: Completion of high school chemistry, CHEM A, or higher level chemistry course with grade of "C" or better

Advisory: Eligibility for ENGL 11 strongly recommended

Hours: 162 (54 lecture, 108 laboratory)

Introduction to the biochemistry, morphology, physiology, genetics, and classification of microorganisms. Emphasis on the significance of microorganisms to human health and global ecology. Laboratory topics include traditional and modern techniques of microbial classification, recombinant DNA technology, and bacteriophage biology. Students enrolling in BIOL 4 after having taken BIOL 8A will lose credit for BIOL 8A. Not open to students that have successfully completed BIOL 8B. (CSU, UC-with unit limitation)

## BIOL 0005. Human Anatomy

*Units: 5*

Prerequisite: Eligibility for ENGL 11

Advisory: Completion of BIOL 55, 56, HSCI 3, or previous science course with grade of "C" or better, or experience in health care field; completion of MATH D with grade of "C" or better; eligibility for ENGL C1000

Hours: 162 (54 lecture, 108 laboratory)

Structural organization, relationships among structures, and histology of the human body: gross and microscopic structure of the integumentary, skeletal, muscular, nervous, endocrine, cardiovascular, lymphatic, respiratory, digestive, urinary and reproductive systems, from cellular to organ system levels of organization. This is a rigorous course in human anatomy primarily intended for nursing, allied health, kinesiology, and other health related majors. Cadaver prosections used for instruction. Nonmajors see BIOL 55, 56, and 56L. Students enrolling in BIOL 5 after having taken BIOL 7A will lose credit for BIOL 7A. (C-ID BIOL 110B) (CSU, UC-with unit limitation)

## BIOL 0005X. Success in Anatomy

*Unit: 1*

Corequisite: Concurrent enrollment in BIOL 5

Hours: 18 lecture

Optional course for students concurrently enrolled in BIOL 5 to gain a deeper understanding of course material through discussions focused on anatomical concepts, terminology, and the implementation of anatomical knowledge to clinical and problem solving situations. Advanced study techniques, necessary for success in science courses, are modeled to strengthen student self-awareness, confidence, and ability to monitor learning. (CSU, UC)

## BIOL 0006. Human Physiology

*Units: 5*

Prerequisite: Completion of CHEM 2A or 1A or 3A/3B; AND BIOL 5 or 7A/7B or 55 with grades of "C" or better

Advisory: Completion of MATH D with grade of "C" or better; completion of a non-majors general biology course with grade of "C" or better; and eligibility for ENGL C1000

Hours: 126 (72 lecture, 54 laboratory)

Study of the physiology, integration, and homeostasis of the human body from chemical through organism levels. Organ systems covered are integumentary, muscular, nervous, sensory, cardiovascular, lymphatic and immune, respiratory, urinary, digestive, endocrine, and reproductive system. Experiments using living and non-living models are performed in lab using methods of data acquisition, recording systems, and analysis of data. Primarily intended for Nursing, Allied Health, Kinesiology, and other health or life science majors. (C-ID BIOL 120B) (CSU, UC-with unit limitation)

## BIOL 0010. Introduction to Biology

*Units: 3*

Advisory: Eligibility for ENGL C1000

Hours: 54 lecture

Designed for non-life science majors desiring an introductory biology course without a lab. Introduces the main concepts of biology, covering molecular and cell biology, heredity and nature of genes, biotechnology, evolution, diversity of life, and principles of ecology. Students enrolling in BIOL 11 after having taken BIOL 10 will lose credit for BIOL 10. Not recommended for students who have already completed BIOL 56. (CSU, UC-with unit limitation)

**BIOL 0011. Concepts of Biology***Units: 4*

Advisory: Eligibility for ENGL C1000 and MATH 12

Hours: 108 (54 lecture, 54 laboratory)

Designed for non-life science majors desiring an introductory biology course with a lab. Introduces the main concepts of biology, covering molecular and cell biology, heredity and nature of genes, biotechnology, evolution, diversity of life, and principles of ecology. Students enrolling in BIOL 11 after having taken BIOL 10 will lose credit for BIOL 10. Not recommended for students who have completed BIOL 56 and 56L. (CSU, UC-with unit limitation)

**BIOL 0013. Field Methods in Ecology***Units: 3*

Formerly known as BIOL 13B

Advisory: Completion of BIOL 14 or ESS 14 strongly recommended

Hours: 90 (36 lecture, 54 laboratory)

Introduction to methods for sampling and studying environmental parameters of ecosystems and organisms. Provides experience with quantitative and qualitative field research techniques and procedures applicable to environmental assessment and population monitoring and proper reporting methods. Field trips required. Students may be required to provide their own transportation. (CSU)

**BIOL 0014. Natural History, Ecology and Conservation***Units: 4*

Also known as ESS 14

Advisory: Eligibility for ENGL C1000

Hours: 108 (54 lecture, 54 laboratory)

Introduction to the study of biology and ecology of organisms and ecosystems of the world, with an emphasis on California. Special focus on significance of functioning ecosystems and human influence on the environment. May include field trips during or in lieu of lab time. (CSU, UC)

**BIOL 0015. Marine Biology***Units: 4*

Advisory: Eligibility for ENGL C1000

Hours: 108 (54 lecture, 54 laboratory)

An introduction to the basic biological and ecological properties of major saltwater environments, including the conservation of and human impacts on marine resources. Designed for both science and non-science majors. Laboratory hours may be partially fulfilled by required field trips. Hiking and boat travel may be necessary. (CSU, UC)

**BIOL 0016A. Local Ecosystems of Placer County***Units: 0.5*

Hours: 13 (7 lecture, 6 laboratory)

Field study that introduces local natural areas and their inhabitants. Selected ecosystems in Placer County are investigated in the field to identify and study the characteristic plants and animals and discover their relationships with the physical environment. This class may require the ability to hike moderate distances on uneven ground. (CSU)

**BIOL 0016B. Local Ecosystems of Nevada County***Units: 0.5*

Hours: 13 (7 lecture, 6 laboratory)

Field study that introduces local natural areas and their inhabitants. Selected ecosystems in Nevada County are investigated in the field to identify and study the characteristic plants and animals and discover their relationships with the physical environment. This class may require the ability to hike moderate distances on uneven ground. (CSU)

**BIOL 0016C. Vernal Pools and the California Prairie***Units: 0.5*

Hours: 13 (7 lecture, 6 laboratory)

Field study that explores the past, present, and future of California's prairie, grassland, and vernal pool ecosystems of the Central Valley. Emphasis on remaining natural areas and conservation efforts. This class may require ability to hike moderate distances on uneven ground. (CSU)

**BIOL 0016D. Biology of Waterfowl and Marsh Birds***Units: 0.5*

Hours: 13 (7 lecture, 6 laboratory)

Field identification and observation of marsh birds (primarily ducks, geese, swans, and wading birds). Includes general waterfowl biology and ecology. Emphasizes evolution, migration, reproductive cycles, current population trends, and habitat needs. Operational needs and conflicts of national and local wildlife refuge system are discussed. This class may require ability to hike moderate distances on uneven ground. (CSU)

**BIOL 0016E. Ecology of the Sierran Conifer Forest***Units: 0.5*

Hours: 13 (7 lecture, 6 laboratory)

Field study that introduces forest biology/ecology, emphasizing interrelationships between the Sierran forest inhabitants (animals, plants, fungi) and their environment. Study sites include a variety of forest and other associated mountain ecological communities. Depending on season offered, special topics may include: fungi biology, wildflower ecology, tree anatomy and physiology, forest nutrient cycles, forest birds, and soil organisms. This class may require ability to hike moderate distances on uneven ground. (CSU)

**BIOL 0016G. Field Paleontology and Ancient Environments***Units: 1-2*

Also known as ESCI 16G

Hours: 30 (12 lecture, 18 laboratory) per unit

Investigations into the ecology of environments in the geologic past through field work at fossil sites. Comparisons and contrasts made between ancient (fossil) communities and the current (living) communities of selected study sites. Differences and similarities between the plants and animals used as evidence to reconstruct ancient ecological communities. This class requires the ability to hike moderate distances on uneven ground. This class will involve camping in either developed campsites or in undeveloped wilderness areas. (CSU)

**BIOL 0016H. Ecology of the Mendocino Coast***Unit: 1*

Hours: 26 (14 lecture, 12 laboratory)

Field study examining the Northern California Coast and its diverse ecological environments. Using the Fort Bragg/Mendocino/Fort Ross areas, investigates the biological relationships found in: the redwood, riparian, pygmy, mixed evergreen and closed-cone pine forests, and the shoreline communities of tidepool, sandy beach, dune, prairie and scrub. Plants, animals, environmental factors and effects of human activities are assessed for each of the ecological communities examined. This class requires the ability to hike moderate distances on uneven ground. This class will involve camping in either developed campsites or in undeveloped wilderness areas. (CSU)

**BIOL 0016I. Biology of Mono Lake and the Great Basin***Unit: 1*

Hours: 26 (14 lecture, 12 laboratory)

Field study investigating the natural history and ecology of the Great Basin with special emphasis on Mono Lake and the Mono Basin. Examines physical, biological, historical, and ecological aspects that make the Mono Basin unique. Emphasis on biological and ecological aspects of the Mono Basin. This class requires the ability to hike moderate distances on uneven ground. This class will involve camping in either developed campsites or in undeveloped wilderness areas. (CSU)

**BIOL 0016J. Ecology of Point Reyes National Seashore***Unit: 1*

Hours: 26 (14 lecture, 12 laboratory)

Field study exploring the coastal mosaic of Point Reyes National Seashore and vicinity. Using the ecological communities present (forests, shoreline, pond and prairie), this area provides a rich biological "laboratory" to study its unique organisms and natural ecosystems, including grasslands, mudflats, forests, marshes, cliffs, beach, and dune sites. Depending on season offered, emphasis may be on wildflowers, mushrooms, owls, elk, reptiles or other life forms. This class requires the ability to hike moderate distances on uneven ground. This class will involve camping in either developed campsites or in undeveloped wilderness areas. (CSU)

**BIOL 0016K. Foothill Ecology of the Sierra Nevada***Unit: 1.5*

Hours: 39 (21 lecture, 18 laboratory)

Field study investigating the ecology of the foothills to mid-montane zones of the Sierra Nevada. Focus on major terrestrial and aquatic ecosystems and ecological islands from 500 to 6000 feet elevation. This class may require ability to hike moderate distances on uneven ground. This class may involve camping in either developed campsites or in undeveloped wilderness areas. (CSU)

**BIOL 0016L. Aquatic and Riparian Environments of California Waterways***Unit: 1.5*

Hours: 39 (21 lecture, 18 laboratory)

Field study of the biological diversity and ecology of aquatic environments and the biology of water life. Focuses on the water cycle and its biological importance and human interactions. Ponds, vernal pools, streams, rivers, lakes, springs, meadows, bogs, marshes (fresh and salt), shorelines, deltas, and/or bay/estuary environments may be investigated. Study sites may include Lake Tahoe, the American River, San Francisco Bay and other aquatic locations. Hiking or boat travel may be necessary. This class may require ability to hike moderate distances on uneven ground. Boat travel may be necessary. This class may involve camping in either developed campsites or in undeveloped wilderness areas. (CSU)

**BIOL 0016M. Marine Mammals and Birds***Unit: 1.5*

Hours: 39 (21 lecture, 18 laboratory)

Field study of the biology of marine mammals and marine birds. Shore and pelagic organisms are studied, emphasizing California-associated species and their habitats. Field and lecture topics include: ecology, evolution, behavior, reproduction, distribution, anatomy, physiology, identification, and population status of whales, true and eared seals, sea otters, shore, bay and pelagic birds. This class may require ability to hike moderate distances on uneven ground. Boat travel may be necessary. This class may involve camping in either developed campsites or in undeveloped wilderness areas. (CSU)

**BIOL 0016N. Ecology of the Modoc Plateau***Unit: 1.5*

Hours: 39 (21 lecture, 18 laboratory)

Field ecology of volcanic and cold desert landscapes found in the Modoc Plateau region of California/Oregon. Ecosystems and environmental relationships stressed. Areas of emphasis include forest ecology, fresh water marsh/watershed, environmental factors, volcanic geology, plant succession, and human influences. Study sites include Lava Beds National Monument and Tule Lake Wildlife Refuge. This class requires the ability to hike moderate distances on uneven ground. This class will involve camping in either developed campsites or in undeveloped wilderness areas. (CSU)

**BIOL 0016O. Ecology of the High Sierra and White-Inyo Mountains***Units: 2*

Hours: 54 (27 lecture, 27 laboratory)

Field study which examines high-elevation mountain ecosystems using the high Sierra Nevada and White-Inyo Mountain Range of California as specific study sites. Observation and study of sub-alpine and alpine ecosystems like forests, montane chaparral, meadows, aquatic habitats, alpine tundra, and fell-fields. This class requires the ability to hike moderate to long distances on uneven ground at high elevations. This class will involve camping in either developed campsites or in undeveloped wilderness areas. (CSU)

**BIOL 0016P. Ecology of Death Valley and Desert Ecosystems***Units: 2*

Hours: 54 (27 lecture, 27 laboratory)

Field study that explores the unique desert ecosystems of Death Valley National Park and nearby areas. Extreme differences of elevation from high mountains to below sea level provide a rich variety of desert environments, plants, and animals. Field work emphasizes identification of animals and plants (many unique to these exotic desert habitats), their special physical and behavioral adaptations to the harsh desert climate and habitats, and the effects of human activities upon the fragile desert ecosystems. This class requires the ability to hike moderate distances on uneven ground. This class will involve camping in either developed campsites or in undeveloped wilderness areas. (CSU)

**BIOL 0016Q. Ecology of Mid-Western North America***Units: 2*

Hours: 54 (27 lecture, 27 laboratory)

Field introduction to ecology of the major biomes, communities and life zones of the Midwestern and Western regions of the United States, emphasizing plains grasslands, montane forests, desert badlands, alpine zones, and aquatic habitats. Topics explored in each ecological area include climate, common plants and animals, species relationships, geology, historical changes, paleoecology and other environmental factors. Fossil and other evidence of past environments compared to present communities. This class requires the ability to hike moderate distances on uneven ground. This class will involve camping in either developed campsites or in undeveloped wilderness areas. (CSU)

**BIOL 0016R. Canyon Lands of the Southwest***Units: 2*

Hours: 54 (27 lecture, 27 laboratory)

Field biology and ecology of the southwestern canyonlands and semi-arid regions, such as the areas in and around the Grand Canyon, Zion Canyon, Bryce Canyon, or other similar areas in the Southwest. Local plants, animals, microenvironments, river systems, human impacts and resource management and special biotic relationships with the canyon landscapes emphasized. This class requires the ability to hike moderate to long distances on uneven ground. This class will involve camping in either developed campsites or in undeveloped wilderness areas. (CSU)

**BIOL 0016T. Ecology of the Northern California Coast***Units: 2*

Hours: 54 (27 lecture, 27 laboratory)

Field course exploring the unique biological and ecological features of the California north coast. Coastal ecosystems studied include redwood forest, coastal grassland, rocky tidepools, marshes, stream, bog, coastal strand, and mixed-evergreen forest. Topics covered include climate, geology, ecology, plant and animal diversity, and human impacts. This class requires the ability to hike moderate distances on uneven ground. This class will involve camping in either developed campsites or in undeveloped wilderness areas. (CSU)

**BIOL 0016U. Ecology of the Central California Coast***Units: 2*

Hours: 54 (27 lecture, 27 laboratory)

Field study of the unique features of the central California coast between Morro Bay, Big Sur, Monterey Bay, and Point Reyes National Seashore. Coastal habitats explored, identifying coastal plants, animals, and geologic processes, and emphasizing the interrelationships characteristic of coastal environments. Environments studied include sandy beach, ocean bay, tidepool, mudflat, coastal forest, oak woodland, grassland and coastal scrub. Areas are contrasted with other coastal regions. Human impacts and living styles viewed as they affect the natural environments. This class requires the ability to hike moderate distances on uneven ground. Boat travel may be necessary. This class will involve camping in either developed campsites or in undeveloped wilderness areas. (CSU)

**BIOL 0016V. Ecology of Southern California Deserts***Units: 2*

Hours: 54 (27 lecture, 27 laboratory)

Explore and study the "hot" deserts of southern California, such as the Mojave, Sonoran/Colorado, or other arid locations, discovering the unique animals and plants which are adapted to these extreme and beautiful environments. Deserts compared to nearby coastal habitats or the desert ecosystems in Arizona (depending on local conditions). California study sites visited may include Joshua Tree National Park, Mojave Desert, Salton Sea, and Anza-Borrego State Park. Focus on the interdependency between the physical environments and the biological inhabitants that live there. This class requires the ability to hike moderate distances on uneven ground. This class will involve camping in either developed campsites or in undeveloped wilderness areas. (CSU)

**BIOL 0016W. Ecology of the Klamath and Southern Cascade Ranges***Units: 2*

Hours: 54 (27 lecture, 27 laboratory)

Field study that explores ecology and unique features of the Klamath and southern Cascade mountain ranges. Study sites include a variety of locations such as Mt. Lassen, Crater Lake, and/or the Marble Mountains. Topics include conifer forest ecosystems, lake ecosystems, ecological succession, montane biogeography, volcanic history and geology. This class requires the ability to hike moderate distance on uneven ground. This class will involve camping in either developed campsites or in undeveloped wilderness areas. (CSU)

**BIOL 0016Y. Ecology of National Parks and Wilderness Ecosystems***Units: 2*

Hours: 54 (27 lecture, 27 laboratory)

Field study exploring the ecology of selected wilderness ecosystems in and/or around national parks. Observation and study of the various habitats (forest, chaparral, riparian, etc.), including the physical and biological factors shaping these ecosystems, and the management techniques, history, and objectives of wilderness preservation and resource use in these areas. This class requires the ability to hike moderate distances on uneven ground. This class will involve camping in either developed campsites or in undeveloped wilderness areas. (CSU)

**BIOL 0016Z. Ecology of the American River***Units: 0.5*

Hours: 13 (7 lecture, 6 laboratory)

Field study of the aquatic, riparian, and associated ecosystems of Sierra Nevada river systems with specific attention on the American River system. This class may require the ability to hike moderate distances on uneven ground. (CSU)

**BIOL 0017B. Ecology of the Sutter Buttes***Units: 0.5*

Hours: 13 (7 lecture, 6 laboratory)

Field study that introduces the ecology of the Sutter Buttes. The area is investigated in the field to identify and study the characteristic plants and animals and discover their relationships with the physical environment. This class may require ability to hike moderate distances on uneven ground. (CSU)

**BIOL 0021. Introduction to Plant Science***Units: 4*

Also known as AGRI 156

Advisory: Eligibility for ENGL C1000

Hours: 108 (54 lecture, 54 laboratory)

Emphasizes structure, growth, physiology and reproduction of flowering plants and their responses to modifications and environment; including propagation, media, soil and plant nutrition. Explores the interrelationship of plant science with other life sciences and technology. Applies principles of plant science to agricultural systems. (CSU, UC)

**BIOL 0023. Wildflower Identification***Unit: 1*

Hours: 26 (13 lecture, 13 activity)

Plant identification, terminology, keying, uses, and ecology. Field trips may require ability to hike moderate distances on uneven ground. (CSU)

**BIOL 0024. Wildland Trees and Shrubs (Dendrology)***Units: 4*

Also known as AGRI 163

Advisory: Eligibility for ENGL C1000

Hours: 108 (54 lecture, 54 laboratory)

A study of botanical characteristics, taxonomy, and physiology of the major trees and shrubs in the Western United States with emphasis on California. Discussion of plant community relationships, geographical ranges, and human impact on forest ecosystems. Identifying specimens under field conditions and using herbarium specimens. (CSU)

**BIOL 0028. Independent Study***Units: 1-3*

Designed for students interested in furthering their knowledge at an independent study level in an area where no specific curriculum offering is currently available. Independent study might include, but is not limited to, research papers, special subject area projects, and research projects. See Independent Study page in catalog. (CSU, UC-with unit limitation)



**BIOL 0030. Introduction to Ornithology***Units: 3*

Advisory: Eligibility for ENGL C1000

Hours: 54 lecture

Introduction to the general ecology, evolution, and physiology of birds, with an emphasis on northern California avifauna. (CSU, UC)

**BIOL 0033. Introduction to Zoology***Units: 4*

Advisory: Eligibility for ENGL C1000

Hours: 108 (54 lecture, 54 laboratory)

A survey of the animal kingdom emphasizing the evolution, structure, function, ecology, and natural history of major groups of animals. Designed for non-science majors. (CSU, UC-with unit limitation)

**BIOL 0035. Introduction to Entomology***Units: 3*

Advisory: Eligibility for ENGL C1000

Hours: 54 lecture

Introduction to the general ecology, evolution, and physiology of insects, with examples from the insect fauna of northern California. Describes the key relationships (medical, agricultural, etc.) insects have with humans. Recommended for general education students or other majors interested in entomology. (CSU, UC)

**BIOL 0036. Introduction to Mammalogy***Units: 3*

Advisory: Eligibility for ENGL C1000

Hours: 54 lecture

Introduction to the general ecology, evolution, and physiology of mammals, with an emphasis on species of northern California. Topics include: identifying characteristics, local species, ecological relationships, human interactions, and behavioral, structural, and physiological adaptations. Recommended for general education students or other majors interested in mammals. (CSU)

**BIOL 0055. General Human Anatomy and Physiology***Units: 4*

Advisory: Eligibility for ENGL 11 strongly recommended

Hours: 108 (54 lecture, 54 laboratory)

An overview of the basic anatomy and physiology of all body systems. Designed for non-science majors and those interested in human anatomy and physiology. Experiments and observations performed on models, nonliving systems, and oneself. (CSU, UC-with unit limitation)

**BIOL 0056. Biology: A Human Perspective***Units: 3*

Advisory: Eligibility for ENGL 11 strongly recommended

Hours: 54 lecture

Principles of biology and how they relate to humans. Emphasis on the human organism, including anatomy, physiology, medicine, research, genetics, evolution, ecology and human impacts on the environment. Not recommended for Biological Sciences majors or students who have completed BIOL 10 or BIOL 11. (CSU, UC-with unit limitation)

**BIOL 0056L. Biology: A Human Perspective Laboratory***Unit: 1*

Prerequisite: Completion with grade of "C" or better or concurrent enrollment in BIOL 56

Advisory: Eligibility for ENGL 11 strongly recommended

Hours: 54 laboratory

Optional laboratory course to be taken with BIOL 56. Topics parallel lecture course, including anatomy, physiology, medicine, research, genetics, evolution, ecology and human impacts on the environment. Not recommended for students who have completed BIOL 11. (CSU, UC-with unit limitation)

**BIOL 0095. Internship in Biological Sciences***Units: 0.5-4*

Designed for advanced students to work in an area related to their educational or occupational goal. Provides new on-the-job technical training under the direction of a worksite supervisor, allowing students to expand knowledge and skills in the chosen field. Mandatory orientation session and faculty approval to determine eligibility. One unit of credit is equal to 54 hours of work. Students may earn up to a total of 16 units in internship courses (any course numbered 95 and PDEV 94). (CSU-with unit limitation)

**BIOL 0140. Organismal Biology***Units: 4.5*

Prerequisite: Completion of intermediate algebra or higher with grade of "C" or better or appropriate placement

Advisory: Eligibility for ENGL C1000

Hours: 144 (54 lecture, 90 laboratory)

Part of the BIOL 1/BIOL 140 course series for life science majors.

Introduction to the principles of ecological and evolutionary processes that shape biodiversity with an emphasis on evolutionary relationships among major groups of organisms, their distinguishing structural and functional traits, the function and evolution of major organ systems, and ecological interactions among organisms. Through lecture and lab activities the diversity of life on Earth is covered, including animals, plants, fungi, and unicellular organisms. Field trips may be required; transportation will be provided. Recommended for biology majors and students in related programs. Non-life science majors see BIOL 14. Not recommended for students taking BIOL 2 and BIOL 3. (CSU, UC)